

### **REMARKS**

This is a full and timely response to the Office Action mailed August 13, 2007.

No claims have been amended in this response. Thus, claims 1-7 are currently pending in this application, with claims 3 and 4 being allowed.

In view of this response, Applicants believe that all pending claims are in condition for allowance. Reexamination and reconsideration in light of the above amendments and the following remarks is respectfully requested.

#### **Rejection under 35 U.S.C. §103**

Claims 1, 2 and 5-7 are rejected under 35 U.S.C. §103(a) as allegedly being obvious over Ahn et al. (U.S. Patent 6,471,753) in view of Bishoff (U.S. Patent 4,696,719). Applicant respectfully traverses this rejection.

To establish a *prima facie* case of obviousness, the following three criteria must be satisfied. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations. Here, in this case, it is respectfully submitted that the combination of Ahn et al. and Bishoff still fails to teach or suggest all the claim limitations with particular emphasis on the limitation "*a steam supply that provides a steam of said liquid and feeding said steam to said liquid collecting end of said carrier for condensation of said liquid therearound in order that the condensed liquid is fed through said carrier to said discharge end*".

Ahn et al. discloses a device for collecting dust using highly charged hyperfine liquid droplets. However, as the Examiner noted in the Office Action, Ahn et al. does not teach or suggest a steam supply. To cure this deficiency of Ahn et al., the Examiner cites the teachings of Bishoff which describes a monomer atomizer for vaporization.

Based on Applicant's review of Bishoff, Applicant does not believe that the teachings of Bishoff cures the deficiencies of Ahn et al. Bishoff discloses an atomizer in which the liquid is supplied through the liquid feed line 11 to the capillary passage 37 where it is subject to

vibration and is cause to be dispersed in fine droplets in the chamber 16. The droplets are heated and vaporized to be fed through the nozzle structure 18 so as to be deposited on the surface 13. The nozzle structure 18 controls the vapor deposition in part by confining vapor flow with inert gas supplied through a line 21 and valve 22 (see column 1, lines 66-69, of Bishoff).

Thus, based on such teachings, Bishoff does not teach or, at the very least, teaches away from compensating the vaporized liquid (steam) and supplying the condensed liquid to the liquid collecting end of the capillary carrier. Although the Examiner notes that Bishoff teaches that the vaporized liquid (steam) is fed to the liquid collecting end of the nozzle structure 18, Bishoff does not teach condensing the once vaporized liquid back to liquid and feed the liquid through the capillary carrier. Thus, Applicant believes that it is not possible to combine the teaching of Bishoff to Ahn et al to arrive at the claimed invention. Applicant believes that at most, the combination of Bishoff and Ahn et al suggest a control of minute particles by means of inert gas, which does not suggest to one skilled in the art the feeding of the condensed liquid to the liquid collecting end to be discharged in the form of minute liquid particles as a result of being applied a high voltage.

In addition, Applicant also submits that there is no motivation to combine the teachings of Ahn et al. with the teachings of Bishoff. According to Section 2143.01 of the Manual of Patent Examining Procedure, if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Also, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Bishoff relates generally to converting liquids into gaseous form and more particularly concerns atomizing monomeric liquids for flash evaporation. As a result, Bishoff does not teach condensing the once vaporized liquid back to liquid and feed the liquid through the capillary carrier since such a modification would render the invention of Bishoff

unsatisfactory for its intended purpose as well as change the principle of operation of the atomizer of Bishoff.

Still further, under U.S. practice, "[I]n order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992).

Ahn et al. is directed to a device for collecting dust using highly charged hyperfine liquid droplets formed through an electro-hydrodynamic atomization process, and Bishoff is directed to a monomer atomizer for vaporization. These two references are in different and non-analogous areas of art as reflected by the different search classes (i.e. 96/27 ; 95/71; 96/53; 96/87; 96/88 for Ahn et al and 202/205 ; 159/2.1; 159/900; 159/DIG.16; 159/DIG.23; 202/235; 203/88; 203/91; 239/102.2 for Bishoff). Further, Bishoff's use of steam is not *reasonably pertinent to the particular problem with which the inventor was concerned* which is to avoid the precipitation of impurities at the discharged end of the carrier for maintaining stable electrostatic atomization over a long period of use. The use of steam in the present invention prevents the mineral components contained in the water from advancing to the discharge end of the capillary carrier and reacting with CO<sub>2</sub> in the air to precipitate as MgO or CaCO<sub>3</sub> which would impede the electrostatic atomization effect.

In contrast, as noted above, the invention of Bishoff relates generally to converting liquids into gaseous form and more particularly concerns atomizing monomeric liquids for flash evaporation. The purpose of flash vaporization in Bishoff (i.e., subjecting small particles of liquid to vaporization heat for almost instantaneous vaporization) is to allow a resin to remain in monomer form through the process of being deposited, and then the capacitor making process cures and cross links the material. Such a purpose is completely unrelated to the problems of the present invention and the particular area of art of Ahn et al. Hence, it is clear that Ahn et al. and Bishoff are in different areas of arts and cannot be combined under U.S. practice.

Thus, for these reasons, withdrawal of these rejections is respectfully requested.

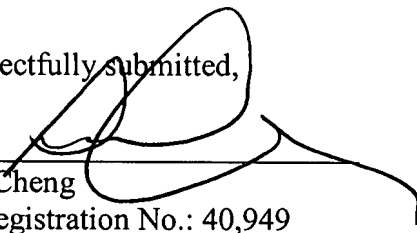
Further, Applicants assert that there are also reasons other than those set forth above why the pending claims are patentable. Applicants hereby reserve the right to submit those other reasons and to argue for the patentability of claims not explicitly addressed herein in future papers.

### CONCLUSION

For the foregoing reasons, all the claims now pending in the present application are believed to be clearly patentable over the outstanding rejections. Accordingly, favorable reconsideration of the claims in light of the above remarks is courteously solicited. If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the below-listed number.

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Respectfully submitted,

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